BIOLOGICAL EVALUATION
Dwarf Mistletoe Control Project

Ashley National Forest
Hominy Creek - Roosevelt Ranger District
Region Four
Utah

1971

INTRODUCTION: On September 9, 1971, Foresters Roy Morgan and Art Ellison, GDA George Houston, and Pathologist Al Tegethoff visited the Hominy Creek area to evaluate dwarf mistletoe control project possibilities. The evaluation was made by taking a series of 1/300 acre sample plots along a random line at one-chain intervals. Overstory trees on those plots were counted. Advanced regeneration was also counted and examined for dwarf mistletoe infection. This stand had been thinned in the past but the scattered dwarf mistletoe infect overstory was not removed. Regeneration is excellent but still too dense at 630 trees/acre.

CAUSAL AGENT: Lodgepole pine dwarf mistletoe--*Arceuthobium americanum*.

HOST: Lodgepole pine--*Pinus contorta*.

FOREST TYPE AND ASSOCIATE SPECIES: Lodgepole pine, Engelmann spruce and subalpine fir.

TYPE OF DAMAGE: Some mortality of the overstory trees is occurring. Because of the low levels of infection in the understory, at present 2% and low intensity of those infections (the few found were class 1 and 2) no damage is occurring in the understory. However, the potential for severe infection exists due to the infected overstory.

STAND DATA: On the basis of 18 1/300 acre plots the area is stocked with an average of 630 trees between 4 feet to 15 feet tall. Average d.b.h. is 3 inches. Growth rate is, at present, 10.2 rings/inch. Growth rates on all trees bored was accelerating. There were considerable numbers of Engelmann spruce and subalpine fir of all age classes well distributed throughout the area. This area is managed for poles, pit props and saw logs. Intermediate commercial thinnings will be made to reduce stocking and thereby dwarf mistletoe infection.

ENVIRONMENTAL FACTORS: There is no effect of elevation upon infection in this area. Deep snowpack may prevent infection of small trees by wiping seeds off the lower branches as the pack recedes. As the crowns of the trees are now tall enough to be above the average snowpack, infection from the overstory source is a certainty.

EXTENT OF INFECTION: Many hundreds of acres of lodgepole pine type on the Ashley National Forest are infected with lodgepole pine dwarf mistletoe. Commercial sales of various products will help to control dwarf mistletoe if properly conducted.

LOCATION: See map.

DISCUSSION: If this area is to be managed for the ultimate crop, saw logs, then these trees must remain dwarf mistletoe free for most of the rotation. Under the conditions that now exist (an overstory source of infection) there is a high probability that dwarf mistletoe infection will intensify in the 40 - 50 years of the rotation to a point where growth loss and mortality will have a severe impact upon production. The assumption of a 40 - 50 year rotation is based upon maintaining the current average growth rate of 10 rings/inch. By proper timing of thinning and adequate spacing, I believe that a better rate of growth can be achieved. If, during subsequent commercial thinnings, the more heavily infected trees are removed and the nonhost species (spruce and fir) are favored, then it will be possible to harvest total volumes from this acreage comparable to volumes from uninfected stands.

RECOMMENDATIONS: I recommend approval of this project and strongly suggest that management of the nonhost species be emphasized during future cultural and harvest operations.

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